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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,038	09/11/2003	Michael Grun	PO7782/LeA 36,303	5801

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EXAMINER

CHOI, LING SIU

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,038

Applicant(s)

GRUN ET AL.

Examiner

Ling-Siu Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/12/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

1. Claims 1-4 are now pending, wherein claims 1-2 are drawn to a branched and coupled polymer; claim 3 is drawn to a process to prepare the branched and coupled polymer; claim 4 is drawn to a tire.

Claim Objections

2. Claims 1-4 are objected to because of the following informalities: (a) claim 1, line 11, "is always" is suggested to be changed to --is--; (b) claim 2, line 5, "and furthermore" is suggested to be changed to --and--; and (c) claim 2, line 7, "the difference" is suggested to be changed to --wherein the difference--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-4 are rejected under 35 U.S.C. 102(a) as being anticipated by Saito et al. (EP 1 153 972 A1).

Branched and Coupled Polymers	A. conjugated dienes or cojugated dienes and vinylaromatic compounds
	B. polyfunctional, organic compounds having at least 4 groups which are capable of coupling
wherein the polymers having	
a	Mw/Mn = 1.0-3.0
b	Mw = 400,000-2,000,000
c	Tg = -50°C - -10°C
d	amount of 1,2-vinyl groups + 40-80% based on the diene units in the polymer
e	degree of coupling $\geq 45\%$
f	degree of branching > 2 for at least 60% of the coupled polymers
with the proviso that	based on 100 g of polymer
	the amount (wt) of polymer with at least 4-fold branching $>$ the amount(wt) of polymer with 3-fold branching
	the difference in the solution viscosity of the polymers before and after the coupling is in the range from 100 to 400

(summary of claim 1)

Saito et al. disclose a diene rubbery polymer comprising a conjugated diene rubbery polymer or a conjugated diene-styrene rubbery copolymer and a **polyfunctional compound** having **at least two** epoxy groups, which reacts (couples) with an active end of the rubbery polymer, wherein the rubbery polymer has a molecular weight distribution (Mw/Mn) of **1.05-3.0**; weight-average molecular weight (Mw) of **100,000-2,000,000**; glass transition temperature (Tg) of **-100-0°C**; **1,2-bond content** of the microstructure of butadiene is 10-80%; the rubbery polymer is modified by the polyfunctional compound in an amount exceeding **60 wt%** based on

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the whole polymer (page 5, lines 42-44; page 7, lines 14-16 and 52-54; page 8, lines 3-4; claim 1). Attention is drawn to a Referential Example 2, the difference of Mooney viscosity at 100°C between the rubbery polymer and modified rubbery polymer is **115** [165-55] (page 11, lines 22-24 and 28-29); the polyfunctional compound is **tetraglycidyl-1,3-bisamino methylcyclo hexane** (page 11, line 25); and the polymerization initiator is organolithium compound (page 5, lines 22-37; [0057]). Saito et al. further disclose that the rubbery polymer is used to produce a tire tread (page 2, lines 27-29). Thus, the present claims are anticipated by the disclosure of Saito et al.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.


LING-SUI CHOI
PRIMARY EXAMINER

February 18, 2005